Space Weather Forecast

Issued on Wednesday, 12 April 2023 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate class flares (R1-R2 Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with a Moderate-class flare peaking at 11/1016 UTC from the largest region on the visible disc which is currently in the southeast. There are currently six sunspot regions on the visible disc. A region which is gradually rotating into view on the southeast limb gave an M-class flare on 10 April, and currently consists of three small spots although further details may become apparent as it moves further onto the disc. The region in the southeast quadrant which gave the recent M-flare is the largest region on the disc. This consists of a large number of individual small spots. A further large region near north centre disc appears relatively unchanged with little activity. The other regions appear to be small and simple at the present time.
There have been no Earth-directed Coronal Mass Ejections (CMEs) observed in available imagery in the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has declined from a fast wind enhancement over the last 24 hours with slightly elevated levels initially 470km/s and are now Slow at around 380 km/s. The total Interplanetary Magnetic Field started Moderate early in the period and is now at Weak levels. The north-south component remained Weak and mostly in a northward directed. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary.

Solar Activity: Solar activity is expected to be Low to Moderate, with a chance of further Isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs, although there might be a glancing arrival from a CME which left the Sun on the 7 Apr, early Day 1 (12 Apr), as well as another possible glance on Day 2 or 3 (13 or 14 April) from a filament eruption that left the sun on 9 April. Solar winds may be slightly elevated given further coronal hole sourced enhancements, however any geomagnetic activity is likely to remain limited. Quiet activity is most likely with a chance of Unsettled intervals and a slight chance of Active especially if any CME arrivals occur.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, with no solar radiation storms anticipated.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	40	40	40	40
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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